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ABSTRACT

The term "ergonagy" is formed from the Greek terms "ergon" (work) and "agogos" (lead). Ergonagy integrates concepts associated with education and training related to preparation for, and performance of, work. Pedagogy may be defined as the art and science of teaching, and andragogy may be defined as the art and science of helping adults learn. Ergonagy may be defined as the art and science of helping people learn to work. These definitions provide a basis for addressing the question of whether ergonagy can be considered a component of education in conjunction with pedagogy and andragogy, and thus provide a clearer and more universally accepted concept of occupational-vocational education and training. Five case studies illustrating how education is defined and implemented in Japan and in the United States were examined to shed light on that question. The cases provided evidence that neither pedagogy nor andragogy can be the sole strategy for occupational and vocational education and training. Rather, a combination of the two, in the form of ergonagy, is most appropriate inasmuch as it subsumes pedagogy and andragogy and more clearly defines and describes occupational-vocational education and training for better international dialogue, research, and comparative studies. (Contains 13 references) (MN)

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ERGONAGY:

Its Relation to Pedagogy and Andragogy

(Presented 14 April, 1999, OISE, University of Toronto, Toronto, Canada at the annual Comparative and International Society (CIES) Conference)

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ERGONAGY:
Its Relation to Pedagogy and Andragogy

ABSTRACT

A new term, *ergonagy,* integrates concepts associated with education and training related to preparation for and performance of work. Having previously presented a comparative perspective of *kyo-iku* (education as it is defined and implemented in Japan) and *education* (as it is defined and implemented in the United States) Tanaka and Evers find that *ergonagy* subsumes pedagogy and andragogy. They further contend that *ergonagy* more clearly defines and describes occupational-vocational education and training for better international dialogue, research, and comparative studies. Employing qualitative analysis and case studies this paper responds to the question, "can *ergonagy* be considered a component of education in conjunction with pedagogy and andragogy and thus provide a clearer and more universally accepted concept of occupational-vocational education and training?" and makes recommendations based upon the findings arrived at in answering the question.

ERGONAGY:
Its Relation to Pedagogy and Andragogy

INTRODUCTION

Professor Kazutoshi Tanaka of the Polytechnic University (Japan) has combined the Greek terms *ergon* (work) and *agogos* (lead) to form a new term, *ergonagy,* that integrates concepts associated with education and training related to preparation for and performance of work. To determine the potential universal application of *ergonagy* Tanaka and Evers have previously presented a comparative perspective of *kyo-iku* (education as it is defined and implemented in Japan) and *education* (as it is defined and implemented in the United States). They find that *ergonagy* subsumes pedagogy and andragogy and more clearly defines and describes occupational-vocational education and training for better international dialogue, research, and comparative studies.[1]

PROBLEM

Although the Japanese term *kyo-iku* is translated into English as *education* there are significant differences in the meanings and applications of the two which lead to problems in understanding, dialogue, research, and comparative studies.[2] To help provide a clearer and more commonly understood component term of education *ergonagy* is advocated. Pedagogy and andragogy are insufficient for combining, integrating, and defining concepts associated with occupational-vocational education and training. This paper responds to the question, "can *ergonagy* be considered a component of education in conjunction with pedagogy and andragogy and thus provide a clearer and more universally accepted concept of occupational-vocational education and training?"

DEFINITIONS

While the term *occupational-vocational education and training* is used herein, one should not assign to it any definition that omits learning for any occupation or profession. Rather, it is inclusive of all occupational skills related education and training. Even those persons in professional fields, such as doctors and lawyers, by learning new work-related tasks and skills are engaged in occupational-vocational education and training.

According to Webster's Dictionary (1997), the term *education* in its original Latin form (*educatus*) included the concepts of "to nurture," "to rear," "to lead forth," and "to draw out". Further definitions as provided by Webster's Dictionary[3] and other terms helpful to this presentation are offered.

> educate - Etymology: Middle English, to rear, from Latin educatus, past participle of educare, to rear, educate, from educere to lead forth. (1a) to provide schooling for (1b) to train by formal instruction and supervised practice especially in a skill, trade, or profession (2a) to develop mentally, morally, or aesthetically especially by instruction (2b) to provide information (3) to persuade or condition to feel, believe, or act in a desired way.
>
> Synonyms are: discipline, instruct, school, train. Related words are: cultivate, nurture, brief, explain, inform.
> educe - Entomology: Latin *educare* to draw out, from *e* + *ducere* to lead
> synonyms: evoke, elicit, extract, extort. Educe implies the bringing out of something potential or latent. Evoke implies a strong stimulus that arouses an emotion or an interest or recalls an image or memory. Elicit implies some effort or skill in drawing forth a response. Extract implies the use of force or pressure in obtaining answers or information. Extort suggests a wringing or wresting from one who resists strongly.
>
> education - (1) the action or process of educating or of being educated; also, a state of knowledge and development resulting from an educational process. The field of study that deals mainly with methods of teaching and learning.
> Synonyms: instruction, schooling, teaching, training, direction, guidance
> Related Words: coaching, pedagogy, tutoring, tutorship, direction, guidance.
> (2) the product or result of being educated
> Synonyms: erudition, knowledge, learning, scholarship, science
> Related Words: culture, edification, enlightenment, learnedness, literacy

Pedagogy - the art and science of teaching.[4]

Andragogy – the art and science of helping adults learn.[5]

Ergonagy - the art and science of helping people learn to work.[6]

These definitions provide a basis for addressing the question "can *ergonagy* be considered a component of education in conjunction with pedagogy and andragogy and thus provide a clearer and more universally accepted concept of occupational-vocational education and training?"

BACKGROUND

Occupational-vocational education and training, and therefore *ergonagy*, incorporates aspects of both pedagogy and andragogy. However, an integration of these aspects into one concept and under one definition, has not been accomplished until now. Based on their previous study, which contrasted the United States' and Japans' definitions of *education*,[7] Evers and Tanaka view *ergonagy* as an integrated and universal component of education, yet a separate component of education that reciprocally compliments pedagogy and andragogy.

While *ergonagy* recognizes differences in the traditional treatment of academic studies and occupational-vocational studies, and differences between pedagogy and andragogy, it also recognizes and stresses the synergy that exists between these. Further, *ergonagy* advocates the blending of these for workforce preparation and development. In essence, *ergonagy* is the art and science of helping people learn to work. It focuses on education and training that promotes learning that relates directly to occupational, vocational, and professional knowledge and skills. As such it subsumes aspects of pedagogy and andragogy thus making dialogue, research, and studies of *kyo-iku* and *education* clearer and more specific.

This presentation accepts the fact that human beings learn. That is, learning takes place with and without a teacher. Therefore, learning is not dependent upon pedagogical strategies. Pedagogy is an external force imposed upon the learner that sets the direction for learning. It may be based on or absent the learner's desires, wishes, or preferences. A child, left to her own devices, will learn. Given sufficient time, that child might learn how to create a wheel from stone, wood, or metal; might learn how to add, divide, subtract, and multiply; and might even learn how to formulate the theory of relativity. However, because these have been learned by others and are available to be passed on and received as part of a shortcut in the learning process there is no need to reinvent the wheel.

The difference between teacher-directed learning and self-directed learning is the director. Thus, what pedagogy provides the learner is externally developed direction and includes such external forces as federal and state law, school board decisions, and teacher preferences and bias. The tutor, teacher, or mentor employs the original meaning of *ducere* (to lead), a root word used to form the word education, in the process of education.

Andragogy, on the other hand, permits a learner who has matured to a level of self-direction to partake in the process of setting the direction of learning. A positive point of andragogy is that it offers an ownership and accountability in the learning process on the part of the learner. However, a negative point is that andragogy may have a result similar to an arrow shot blindly into the air - without purposeful direction it may miss its target.

It is a combination of the positive aspects of these two educational processes that best describe education and training that promotes learning that relates directly to occupational-vocational knowledge and skills. *Ergonagy* employs directed learning techniques of pedagogy that induce such necessary skills as reading, writing, math, and job peculiar

knowledge and skills, and compliments these with the knowledge and beliefs previously learned by the society as a whole. Further, it employs self-directed techniques of andragogy to educe, or draw out, the volition to open doors to new learning, experimentation, and creativity for an individual who can then add to a society's knowledge, skills, and beliefs. *Ergonagy* employs a combination of pedagogy and andragogy to effect a more complete learning process toward individual fulfillment in one's chosen occupation.

METHODOLOGY

The perspectives provided in this presentation are consistent with descriptions and methodologies of qualitative content analysis. Analysis of information is a continuous and on-going process as new materials are discovered and added to previously gleaned information and data. A constant analysis compares content from various sources and the data and information are synthesized through a continuous process. Case studies are included in this writing along with information gleaned from literature.

COMPARATIVE REVIEW

Leaders in United States' business and industry such as Robert T. Jones, President of the National Alliance of Business, allege that school-based systems of the United States will be challenged to provide the workforce with entry level workers who have mastered mathematics, science and logical reasoning. They indicate that if school-based education can provide individuals to the workforce who possess this knowledge base, then industry will assume a greater responsibility in providing occupational skills.[8] This concept is similar to the model that is found in Japan wherein school education provides life-skills and business and industry provide occupational skills.

Thomas Rholen, an anthropologist at Stanford University, has presented findings that indicate that Japan is a highly educated society. He indicates that standardized tests, readership polls, and scholastic and work-based performance studies show that the average Japanese is ahead of the average American in reading, math, and science skills.[9] However, United States Department of Labor statistics indicate that comparative data shows that the United States is more productive, more creative and economically more progressive than Japan.[10] Japan is seen as more pedagogical in its approach to education than is the United States and the United States promotes andragogy earlier in its educational processes.[11]

Japan's system of education is one that is highly pedagogical. Curricula in all schools, to include college and university level studies, is tightly controlled and standardized throughout the country by governmental ministries.[12] Even in the workplace, training of employees is standardized. Directed teaching is apparently of significant value in Japan and therefore stressed in that society. Thus, learning in standardized curricula is foremost and probably results in high scores on standardized tests and common core subjects.

Japan's students have very limited opportunity to exercise choices for course work in schools and are instead guided toward academic or vocational studies based upon test results. The assumption is that test results will indicate both aptitude and attitude toward a field of lifetime interests and work. The tests, it is believed, will separate students into groups toward academic or vocational interests and orientations at the junior high and high school level and then further into subject area groups at the college level. Once in the workplace, the employing company will educate and train individuals through OJT to establish the proper fit for the individual and the company. Thus occupational-vocational education and training is predominantly a guided process throughout one's lifetime in Japan.[13]

The United States, on the other hand, opens its educational processes to student input relatively early in the learning process. It is common for students to begin having some selection and elective choices of courses as early as the seventh or eighth grade. Individual selection of courses permits crossing lines between academic and vocational-technical subjects. The selection process is not completely without guidance and direction, and aptitude tests help guide the selection, but this process is viewed as more flexible than that of Japan. At the college and university level students in the United States select courses of study, within guidelines, from among several that apply to their major field of study. Students in the United States are apt to change their majors several times. They may change college or university association, and transfer between four-year and two-year colleges. Once in the work place individuals may return to college for further developmental studies or for occupational change. Even those with terminal degrees may enroll in a community college or four-year college for occupational/career change, career enhancement, or personal interest. Thus the processes of andragogy may be as prevalent in the United States as are pedagogical processes.

The cost to Japan, according to a 1995 report of Japan's Ministry of Education, is a lack of a creative workforce. The population, while being highly educated, noted for its enviable work ethic, and capable of adapting almost any invention to industrial and household use, lacks what the Ministry of Education has called "creativity" and "the ability to think for oneself".[14] Based upon the Ministry's finding it appears that the cost of a heavy reliance on pedagogical techniques in education is the creation of a society that seeks external guidance and direction from authority rather than the creation of initiative and self-development.

The cost to the United States, for what may be a heavy reliance on andragogy, is having a large portion of its population that is considered to be illiterate and undereducated in basic skills.

> … (T)he United States is one of only a few industrialized nations that does not have an organized, comprehensive system to help young people prepare for and enter the workforce. Because of the increasing demands of a highly competitive global economy, employers have difficulty finding workers with the academic, analytical, and technical skills they need.[15]

Left perhaps too often to their own initiative and interests young learners in the United States are not being prepared to enter the world of work. Educators, by failing to provide direction that helps learners identify purposeful skills and aptitudes, may be abetting a lack of development necessary for an individual's satisfying occupational endeavors. A lack of direction (*ducere*) toward occupational, vocational, and professional behaviors may well have resulted in a lack of learning necessary to gain even basic work skills.

These perspectives, gleaned from a comparison of the United States and Japan, indicate that a balance of pedagogical and andragogical techniques are needed to better prepare individuals to enter and maintain currency in their field of work -- and most, if not all, will work at something. Also, the absence of sufficient and balanced learning increases opportunities for social classes to form. Already attendance at a vocational school, in both the United States and Japan, is viewed with a stigma that places students in a class that is perceived by many to be lower than that of those who pursue academic scholarship. When this is not countered through a healthy balance of educational applications, then societies become susceptible to class structures and caste systems. A stigma such as this results in regression toward societies such as those that existed, and still exist, where elite schools and tutors taught the wealthy and apprenticeships were for the working class.[16]

THE THEORY OF *ERGONAGY* AND ITS PURPOSE AND PLACE IN TIME

As studies of education have been completed over the short history of the United States, most have concentrated on pedagogic concepts, methods, techniques, and strategies. In some instances it is as if pedagogy possessed the only forms of educational strategies. In fact, until the development of andragogy, the strategies of pedagogy were presumed by many educators to be sufficient to carry an individual through life. That is, what was considered necessary for socialization into the society and learned through formal education during childhood, adolescence, and youth was sufficient for life. Figure 1 depicts this thought in relation to purpose and time. This assumption however proved false as the industrial revolution and the technological revolution required individuals to continue learning in order to upgrade work skills. Also, as agrarian cultures gave way to industrialization and life expectancy increased, changes in work habits required new strategies in education that provided for self-directed and facilitated learning during the adult years of life.

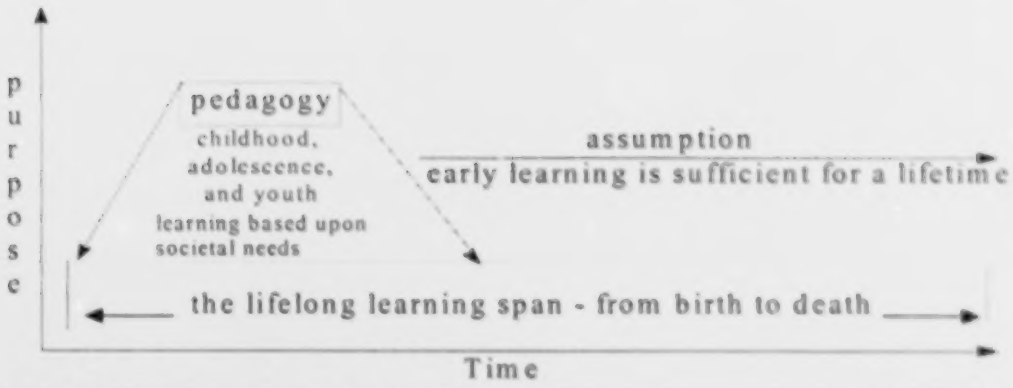

Figure 1: Pedagogy: Its Purpose and Placement in Time

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With the works of Malcomb Knowles the concepts, methodologies, techniques, and strategies of adult self-directed and facilitated learning were formalized. He termed this adult learning "andragogy." Figure 2 shows the general placement of andragogy in a life span model. Knowles presented strong argument that learning in adulthood is associated with change and is most often based upon the needs and desires of the individual rather than mandates of a society that is represented by governing boards. Changes in age, lifestyle, interests, physical abilities/limitations, health, job skills, and technology are a few examples of causes that may result in a change of learning direction for an individual or group of individuals.[17]

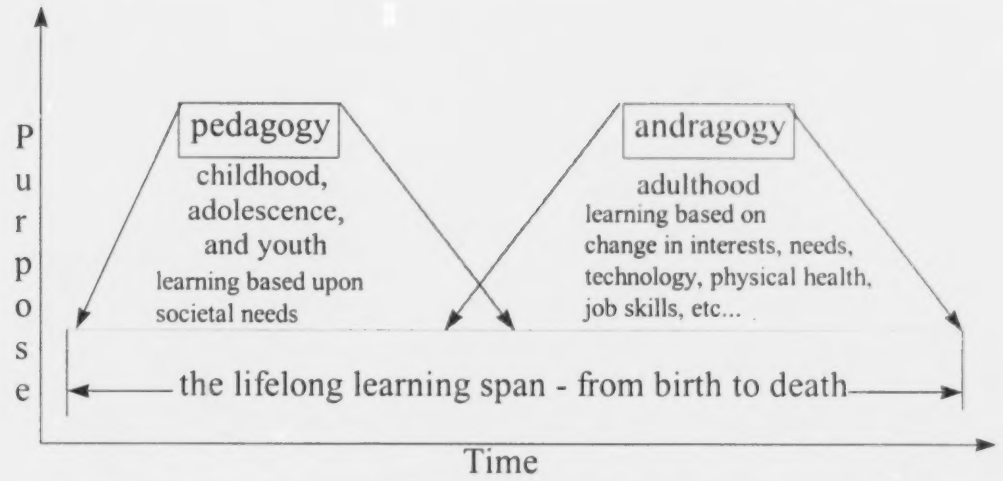
Purpose
pedagogy
childhood, adolescence, and youth
learning based upon societal needs
andragogy
adulthood
learning based on change in interests, needs, technology, physical health, job skills, etc...
the lifelong learning span - from birth to death
Time

Figure 2: Pedagogy and Andragogy: Their Purpose and Placement in Time

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The combination of pedagogy and andragogy might seem to be sufficient to cover one's learning lifetime if considered solely from the single dimension of time. However there is lacking in either of these a vertical dimension of personal and social work-related purpose or intent. That is, if one's life span is viewed as a line along a horizontal plane that represents time from birth to death, then pedagogy and andragogy seem to have a natural fit in place along that line. Pedagogy appears to fit in the youthful developmental stages of life when external direction is most critical, whereas andragogy appears to fit the adult years where self-direction is most fitting. However, when a vertical plane, which represents purpose, is imposed on the horizontal plane of time, then one can find points where pedagogy and andragogy overlap or are inappropriate. Pedagogy is employed throughout the working years as one's company, government, or social mandates require specified new learning for workers. On the other hand, personal desire for change often requires self-directed learning.

Pedagogy has historically been intended to meet the needs of society by passing on national and local culture while instilling in youth an education sufficient to become productive and cooperative citizens. Andragogy is intended to meet adults' self-directed learning needs. To many, self-directed learning has been viewed as learning for leisure, play, and avocations. Admittedly, andragogy is not specifically directed toward occupation and work because many of the educational requirements for job entry and job continuation are market driven and employer or government mandated rather than self-directed by the worker-learner. Thus, education and training that leads to an occupation and assists in occupational upgrade or change falls neither solely into pedagogy nor into andragogy, but rather subsumes some parts of each.

The working years of an individual are usually thirty to forty years and a worker in the United States is likely to change occupations a number of times during his lifetime. The expected number of working years is more than twice the number of school years and, except in rare instances, longer than retirement years. However, until now there have been no defined concepts or strategies that focus specifically on education and training for occupation or work. Educational programs designed to prepare people for work have been insufficient, as many people do not work in jobs related to the programs of study once they enter the workforce. In Japan it is very common for an employer to retrain an individual into a field very different from his college major. That an individual "fit" the company and his position is more important than what the individual brings to the company and the position.

In the United States, a significant number of college graduates do not work in their university field of study. The trend is for people in the United States to work in several jobs for several different employers over the course of their lives. A number of people engage in two or three different careers over the span of their working years and then enter post-work volunteer positions in their communities. The United States Department of Education, National Center for Education Statistics presents data from numerous studies that indicate that within four years of graduation a large number of college graduates do not work in occupations that are associated with their major.[18] One study in particular shows that of all college graduates in the United States who completed their baccalaureate studies in 1993 forty-four per cent of them do not work in occupations that are closely related to their majors.[19] With the number of work-related changes encountered by individuals throughout their working years, a more responsive process for providing education and training is needed. *Ergonagy* is that responsive process.

Ergonagy provides a means whereby strategies that are geared toward occupational-vocational education and training can be developed and refined as change occurs. *Ergonagy* is inclusive of workforce entry, workforce preparedness, and human resource development. *Ergonagy*, as the art and science of helping people learn to work, focuses on learning for vocational, occupational, and professional purposes. It is used both in preparation for, and during, one's working years (the dimension of time) with the intent of enhancing one's ability to work continuously and productively (the dimension of purpose).

It is incorrect to think that work related education and training occurs only during the working years and only within what has historically been called vocational education (that is, non-academic or non-college preparatory curricula). If fact occupational-vocational education and training spans many of the pedagogic years, absorbs much of the andragogic years, and incorporates most if not all the academic and vocational skills that can be gained in the course of one's school and non-school related experiences.

Ergonagy employs strategies that are found in both pedagogy and andragogy, yet provides purpose and direction to those strategies that are beneficial to both society and to the individual's self-directed desires for fulfillment. Figure 3 provides a perspective of the anticipated impact of *ergonagy* with its potential to draw from both pedagogy and andragogy those strategies needed for vocational and occupational learning. Further, *ergonagy* is expected to have direct impact on second careers and retirement activities. *Ergonagy* spans both time and purpose beyond either pedagogy or andragogy alone in its specific applications for individual work skills development and for workforce preparedness and workforce development.

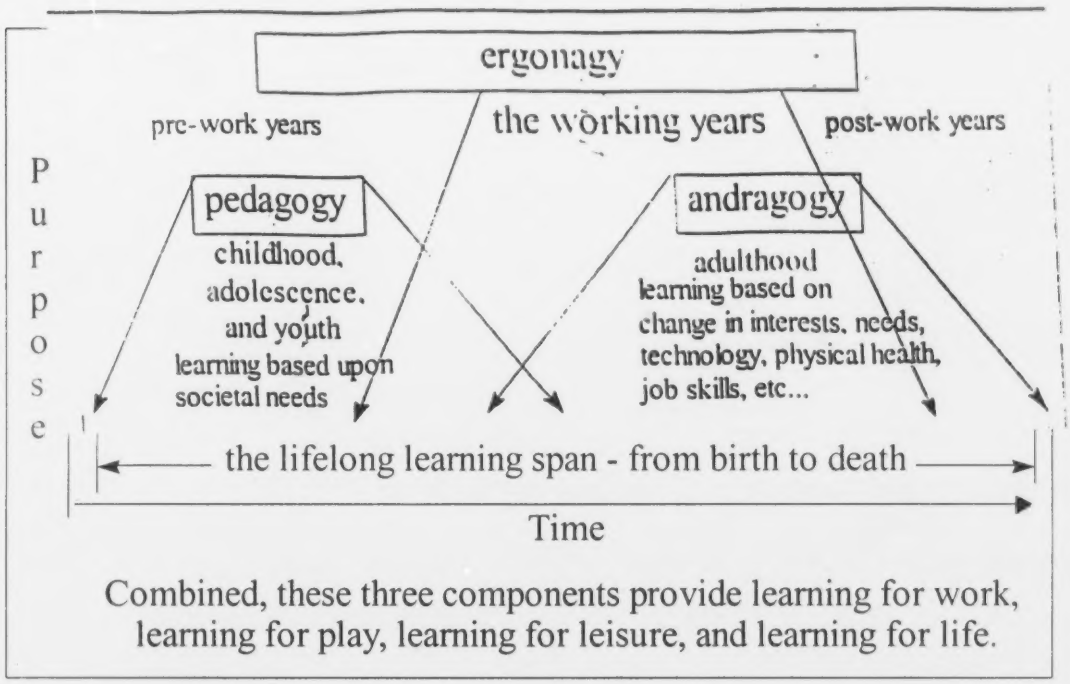
ergonagy
pre-work years
the working years
post-work years
Purpose
pedagogy
childhood, adolescence, and youth
learning based upon societal needs
andragogy
adulthood
learning based on change in interests, needs, technology, physical health, job skills, etc...
the lifelong learning span - from birth to death
Time
Combined, these three components provide learning for work, learning for play, learning for leisure, and learning for life.

Figure 3: *Ergonagy* in Relation to Pedagogy and Andragogy

As indicated in Figure 3, *ergonagy* draws upon teacher directed education (pedagogy) and brings what was learned forward in an individual's life so that not only can preparation and direction toward a chosen occupation be developed but also further learning can be fostered. Whether it is subjects of mathematics, language, social sciences, or physical sciences, each topical area within school curricula is absorbed into the strategies associated with *ergonagy*. What an individual learns during his or her youth can find application in his or her vocation. Building upon pedagogic foundations is one function of *ergonagy*. However, *ergonagy* is flexible so as to adapt its strategies to the individual and to change. Andragogic strategies are absorbed into *ergonagy* so that occupational-vocational education is continual, flexible, and adaptive to individual learning needs and desires.

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CASE STUDIES IN *ERGONAGY*

As examples of the place of *ergonagy* within the dimensions of time and purpose, the cases of Gary, John, Alicia, Ichiro, and Jiro are presented. These case studies provide evidence that pedagogy and andragogy can not be the sole strategy for occupational and vocational education and training. Rather, a combination of these , in the form of *ergonagy*, is most appropriate.

Gary, after completing college became a biology teacher at a high school. To do so he had to bring with him knowledge and skills gained from many courses provided through elementary and secondary pedagogic curricula. Through andragogical processes he brought forward experiential learning and refined what he had learned. During his first career, Gary continued to take advantage of learning opportunities. Governing boards, as requirements to maintain certification, mandated some courses, but most were elective and entered into in order to change his specific occupation. During Gary's thirty-year career in education he was first a teacher, then a counselor, and finally a school principal. Each job change required that he meet new standards, learn new material and skills, and renew his already attained knowledge, skills, and abilities.

Upon retirement from the school system, Gary embarked on a second career. In order to do so he had to complete certification courses in real estate sales and management. When Gary retired from the real estate business he became a county magistrate and a volunteer worker at a hospital. Learning which complimented these changes was gained through ergonagic strategies. That is, there were various combinations of both pedagogic and andragogic strategies employed that focused specifically on a purpose associated directly with occupational knowledge, skills, and attitudes.

John completed college with a degree in Criminal Justice. While in college, he was an excellent football player. After graduation from college he set aside his criminal justice education and spent twelve years in the entertainment industry as a professional football player. After his initial retirement John pursued a second career in law enforcement. Due to changes in equipment, technologies, laws, and philosophies related to criminal justice, John, despite having a degree in the subject area, had to avail himself of learning experiences that helped refresh and upgrade his occupational knowledge, skills, and abilities. Both of John's careers required learning that was ergonagic. Both careers engaged him in required directed education and training and self-directed education and training that prepared John to fulfill his goals for work and helped him continually progress toward his desires for productive work.

Alicia graduated from a prestigious university with a major in journalism. Shortly after graduation she became disinterested in journalism. For two years she worked as a temporary clerical office support person and café manager, both part-time. She then returned to university to get a second degree in English and a teaching certificate. Upon completing her certification requirements she taught high school English and supported the school's student newspaper staff as faculty advisor. She remained in this job for five years. She is now owner and manager of a successful restaurant and states that this is what she had desired to do all along. It was educators who had guided and directed her toward journalism and English. Despite misguided counsel grounded in teacher bias Alicia weathered the changes created by miseducation. She overcame her miseducation and developed her work skills in her chosen field of work through *ergonomic* practices.

Ichiro did not complete high school. When he arrived in the United States he spoke very little English. His employer encouraged him to engage in education through a community college to learn English and complete high school equivalency requirements. He did so and then continued on in college to earn a license as an automobile mechanic. Today Ichiro owns his own automobile repair shop. He engaged in ergonagic learning that met his needs in time and purpose. The education and training that he had gained early in life enabled him to learn more. And, given the opportunity to engage in learning that was ergonagic to his work desires and needs, he became a productive citizen. While Ichiro's employer encouraged him to take advantage of pedagogical opportunities that licensed him for his work Ichiro was also engaged in andragogical opportunities at the college and also at the work site through mentoring and on-the-job-training.

Jiro attended a prestigious University in Tokyo. He performed well on examinations at each phase of his progress through the examination gauntlet of Japan. Like most Japanese students, he was not so concerned with which major to select, but rather, he was most concerned with doing well enough on his examinations to qualify him for entry into a particular university which would result in his being selected for work with a particular company. While in college he majored in chemical engineering. Upon entry into the company that he had hoped to work for, one with a respected international reputation, he was put through a two and one-half year period of orientation and training. Upon completion of that period the company placed him into a position that had him managing the finances for one of its primary plants. In his six years with the firm he has yet to work as a chemical engineer. He continues to function in positions of financial management.

INFERENCES FROM THE CASE STUDIES

Although varied in their specifics, each case study offers several similarities and consistencies. In each case there were changes over the course of the period covered by the case study that required new knowledge, skills, and abilities. In each case there were both teacher/institution directed (pedagogy) and self-directed (andragogy) education and training strategies and processes that were employed. In each case education and training beyond that which is offered through formal schooling was essential as part of the change process. And, perhaps most significantly, in each case there were points at which there is a marked absence of an educator knowledgeable of education and training programming processes that could have assisted with each change. Based upon the perspectives presented in the case studies there are five significant inferences.

1. There appears to be in existence a form of education that can indeed be referred to as *ergonagy*.
2. As the art and science of helping people learn to work *ergonagy* can fill a void in educational strategies that is left vacant by either or both pedagogy and andragogy.
3. *Ergonagy* completes the educational needs of working societies and individuals from perspectives of time and purpose.
4. Combined, pedagogy, andragogy, and *ergonagy* provide learning for socialization, play, leisure, work, and for life.
5. There is a need for educators to become more involved in program development regarding education and training associated with work related change processes.

CONCLUSIONS, FINDINGS, AND RECOMMENDATIONS FOR FURTHER STUDY

> At the post-secondary level and beyond, we've grown accustomed to clear lines of demarcation. Corporations do "training", while schools and colleges do "education". Four-year universities educate some while community colleges educate others. The new economy will blur these lines and prompt a flowering of new structures (Jones, 1997, pp. 19-20).

One of the new structures is *ergonagy*. *Ergonagy* provides purpose for learning with that purpose being directed toward education and training for vocational, occupational, and professional preparation and progress. It brings into focus these purposes and provides reason for engaging in education and training. *Ergonagy* potentially offers the most needs-based workforce preparedness and development strategies for learning yet presented to humankind. At the same time it synthesizes a broad concept into one word that can be used in research and dialogue that is consistent, meaningful, and global.

Acceptance of and use of the term *ergonagy* and its concepts provides a new dimension to education and training that permits a common and universal understanding of education and training that is specific to occupation, vocation, and profession. Based upon this initial glance at the potentiality of *ergonagy*, it is the finding of this study that *ergonagy* can indeed be considered a component of education. It is as real and as necessary as pedagogy and andragogy. The concept of *ergonagy* provides a clearer definition of occupational, vocational, and professional education and training that can be universally applied. Finally, the authors of this study recommend that further research be conducted to determine (1) the role of *ergonagy* in the work place, (2) the programming processes model that best supports *ergonagy*, and (3) the role of the educational programmer or curriculum design specialists with regard to *ergonagy*.

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